

REMARKS

In response to the Office Action dated May 26, 2010, Applicants respectfully request reconsideration based on the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-7 are pending in the present Application. Claims 1-4 are withdrawn as being directed to non-elected subject matter, leaving Claims 5-7 for consideration upon entry of the following remarks. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Rejections Under 35 U.S.C. § 103

In order for an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). See MPEP 2143.

Claims 5-7 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Ben-David et al. (U.S. Patent Application Publication No. 2008/0192178, hereinafter “Ben-David”) in view of Elliott et al. (U.S. Patent Application Publication No. 2005/0088385, hereinafter “Elliott”).

The Examiner states that **Ben-David** in view of **Elliott** teaches all the limitations of Claims 5-7. In particular, the Examiner states that Ben-David discloses all of the elements of the abovementioned claims except for that the entire edge of the first pair of subpixels is enclosed by the second pair of subpixels and the third pair of subpixels, which the Examiner alleges is disclosed in FIG. 13 of Elliott.

Independent Claim 5 recites *inter alia*:

"a plurality of pixels arranged in matrix, each pixel including first to third pairs of subpixels,

wherein the first pair of subpixels are disposed adjacent to each other, the second and the third pairs of subpixels are disposed opposite each other with respect to the first pair of subpixels, and the first to the third pairs of subpixels include first-color subpixels and second-color subpixels,

wherein the entire edge of the first pair of subpixels is enclosed by the second pair of subpixels and the third pair of subpixels, and

wherein the first-color and the second-color subpixels have complementary relation and wherein a group consisting of the first-color subpixels include red green, and blue subpixels and a group consisting of the second-color subpixels include cyan, white, and yellow subpixels."

On Page 5 of the instant Office action, it is asserted that six subpixel cell arrangements, e.g., 1320 and 1323 in Figure 13 of Elliott, show an entire edge of a first pair of subpixels is enclosed by a second and third pair of subpixels. On Page 6 it is further noted that Elliott discloses the replacement of one subpixel of a six subpixel repeat cell with a white element, with reference to 1320 and 1323 in Figure 13, and paragraphs 0084 and 0085.

It is conceded on Page 6 of the instant Office action that Ben-David and Elliott disclose the claimed invention *except for* the replaced subpixel being the magenta (M) subpixel. It is then asserted that since the prior art offers only six choices of subpixel colors to replace – R, G, B, C, M or Y, one of ordinary skill in the art *could have pursued* the known potential solution or replacements with a reasonable expectation of success. Applicants respectfully disagree for the reasons set forth below.

Firstly, as is well known in the art, *a complete set* of primary colors for generating all colors by combination consists of a complete set of R, G and B, or a complete set of C, Y and M.

However, contrary to this common knowledge, the claimed invention includes one of the complete set of RGB and CYM subpixels being completely replaced with a white (W) element, such that the replaced color subpixel does not exist within the pixel. For example, in the specification of the present invention, it is described that when cyan and yellow pixels are added to red, green and blue pixels, color reproducibility is improved but a magenta pixel is not effective to improve color reproducibility. Accordingly, adding a white pixel *instead of the*

magenta pixel is helpful for increasing luminance. (See, FIGS. 11 and 12 and paragraphs [108] – [110] of the specification.)

Ben-David teaches an arrangement of six subpixels within a pixel, including a complete set of both RGB and CYM color subpixels within each pixel, for example, in Figures 12A and 12B. (See, also paragraphs 0084 and 0085 of Ben-David.) Ben-David specifically includes a *complete set* of each of the primary colors RGB and CYM in paragraphs 0084 and 0085, for example, as each vertical subpixel pair can individually reproduce white by R+C, G+M and B+Y by arranging each primary color subpixel vertically adjacent to a complementary primary color subpixel.

That is, there is *no suggestion or motivation* in Ben-David or to one of ordinary skill in the art for replacing one of the colors of a primary color set with white, to as to teach the first-color and the second-color subpixels have complementary relation and wherein a group consisting of the first-color subpixels include red, green, and blue subpixels and a group consisting of the second-color subpixels include cyan, white, and yellow subpixels, since reproducing white is already achieved by the specific teachings of complementary primary color subpixels in Ben-David.

Elliot merely discloses either R, G, B or R, G, B, W repeat cell arrangements in FIG. 13 of Elliott relied upon by the Examiner. (See paragraphs [0074]-[0089]). There is no disclosure of C, M or Y subpixels, let alone using a W subpixel instead of an M subpixel as claimed. Furthermore, there is no disclosure of using a W subpixel in place of either an R, G, or B subpixel, and thus no disclosure of replacing one of the six subpixels (R, G., B) with a white element as suggested by the Examiner. At most, Elliott merely discloses RGB or RGBW six subpixel repeat cell arrangements in FIG.. 13 of Elliot relied upon by the Examiner.

Additionally, Elliott merely examines a six subpixel arrangement , e.g., 1323, in paragraphs 0084-0086, including a complete set of RGB with W added, for color rendering correction. Image reconstruction using the RGBW system is described at paragraphs 0088-0095 of Elliott, but again, the system includes a *complete set* of the primary colors RGB, merely with W added. Elliott does not teach or suggest any rationale for including a W element within its primary color RGB arrangement.

That is, there is *no suggestion or motivation* in Elliott or to one of ordinary skill in the art for replacing one of the colors of a primary color set with white, so as to teach the first-color and IY-200310-130-1-US0 OPP20060624US PNK0337US Page 6 of 11.

the second-color subpixels have complementary relation and wherein a group consisting of the first-color subpixels include red green, and blue subpixels and a group consisting of the second-color subpixels include cyan, white, and yellow subpixels, since Elliott specifically teaches maintaining a complete set of primary color subpixels and merely adds a white element to the arrangement without any expressed purpose or rationale.

Secondly, to teach the claimed invention of one of the complete set of RGB and CYM subpixels being completely replaced with a white (W) element such that the replaced color subpixel does not exist within the pixel, from a beginning arrangement of subpixels which include a *complete set* of primary colors taught by Ben-David and Elliott, one would have to remove one of the primary colors and then completely replace it with a white element. As discussed above, neither Ben-David nor Elliott provides a *suggestion or motivation* for replacing one of the colors of a primary color set with white, to the exclusion of that replaced primary color.

Thirdly, neither Ben-David nor Elliott provides a reason for one of ordinary skill in the art to modify or combine the references in the manner required to meet at least independent Claim 5. *In re Laskowski*, 871 F.2d 115, 117, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989) (“Although the Commissioner suggests that [the structure in the primary art reference] could readily be modified to form the [claimed] structure, ‘[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification’”) (citation omitted); *In re Stencil*, 828 F.2d 751, 755, 4 U.S.P.Q.2d 1071, 1073 (Fed. Cir. 1987) (obviousness cannot be established “by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion that the combination be made”).

The only motivation alleged for modifying the teachings of Ben-David and Elliott is identified as since the prior art offers only six choices of subpixel colors to replace – R, G, B, C, M or Y, one of ordinary skill in the art *could have pursued* the known potential solution or replacements with a reasonable expectation of success. Applicants respectfully submit that the mere fact that the teachings of Ben-David and Elliott *could be* so modified to arrive at the

claimed invention would not have made the modification obvious unless the prior art suggested the desirability of the modification.

As discussed above, the teachings of Ben-David and Elliott include an arrangement including *a complete set* of the primary colors RGB or CYM, respectively, and the only modification taught is merely adding a W element to an already complete set of primary colors. That is, Ben-David and Elliott are *absent any teachings* regarding removing one of the primary colors and then completely replace it with a white element as claimed.

Therefore, the Ben-David and Elliott have not been considered as a whole, and the claimed invention is nonobvious. Reconsideration, withdrawal of the 35 U.S.C. §103 claim rejections and allowance of Claim 5, and Claims 6 and 7 depending thereon, are respectfully requested.

Fourthly, Applicants respectfully submit that a finding of "obvious to try," e.g., one of ordinary skill in the art *could have pursued* the known potential solution or replacements with a reasonable expectation of success, as expressed in the instant Office action, does not provide the proper showing for an obviousness determination. The requirement for a determination of obviousness is that "both the suggestion and the expectation of success must be founded in the prior art, not in applicant's disclosure" (emphasis added). *In re Dow Chem.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). That is, a determination of obviousness cannot be based on what the skilled person in the art *might try or find obvious to try*. Rather, the proper test requires determining *what the prior art would have led the skilled person to do*.

As discussed above, the teachings of Ben-David and Elliott include an arrangement including *a complete set* of the primary colors RGB or CYM, respectively, and the only modification taught is merely adding a W element to an already complete set of primary colors. Based on the teachings of Ben-David and Elliott available to the skilled person, that skilled person *would not have been led* to completely replacing one of the primary color subpixels with a white element, since the teachings of Ben-David and Elliott include an arrangement including *a complete set* of the primary colors RGB or CYM, respectively, and the only modification taught is merely adding a W element to an already complete set of primary colors.

Therefore, the claimed invention is nonobvious. Reconsideration, withdrawal of the 35 U.S.C. §103 claim rejections and allowance of Claim 5, and Claims 6 and 7 depending thereon, are respectfully requested.

Fifthly, the requirement for a determination of obviousness is that "both the suggestion and the expectation of success must be founded in the prior art, not in applicant's disclosure" (emphasis added). *In re Dow Chem.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). An Examiner thus cannot base a determination of obviousness on what the skilled person in the art might try or find obvious to try. Rather, the proper test requires determining what the prior art would have led the skilled person to do, with a reasonable expectation of success.

In applying Section 103, the U.S. Court of Appeals for the Federal Circuit has consistently held that one must consider both the *invention and the prior art "as a whole,"* not from improper hindsight gained from consideration of the claimed invention. See, *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein.

According to the *Interconnect* court

[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution.

As a whole, the teachings of Ben-David and Elliott include an arrangement including a *complete set* of the primary colors RGB or CYM, respectively, and the only modification taught is merely adding a W element to an already complete set of primary colors. In contrast, contrary to common knowledge, as a whole, the claimed invention includes one of the complete set of RGB and CYM subpixels being completely replaced with a white (W) element, such that the replaced color subpixel does not exist within the pixel.

Since the teachings of Ben-David and Elliott as a whole, are contrary to the teachings of the claimed invention as a whole, there exists *no suggestion or motivation* for replacing one of the colors of the primary color sets (RGB or CYM) in Ben-David or Elliott with white, to the exclusion of that replaced primary color to teach the claimed invention. Therefore, the claimed invention is nonobvious. Reconsideration, withdrawal of the 35 U.S.C. §103 claim rejections and allowance of Claim 5, and Claims 6 and 7 depending thereon, are respectfully requested.

Finally, since both Ben-David and Elliott fail to provide any suggestion or motivation for completely replacing one of the primary color subpixels with a white element of the claimed invention, and since the only other motivation offered in asserting a modification of the teachings of Ben-David and Elliott relies on what *could have been pursued* or what *could have been tried*, Applicants respectfully submit that an improper standard has been used in arriving at the rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of Applicants' invention and to the totality of the cited references.

More specifically the Examiner has used Applicants' disclosure to select portions of Ben-David and Elliott to allegedly arrive at Applicant's invention. In doing so, the teachings of Ben-David and Elliott or Applicant's invention as a whole have failed to be considered in contravention of section 103, including the teachings of the references to maintain *a complete set* of primary color subpixels, which teaches contrary to Applicants' invention.

Therefore, since an improper standard has been used in arriving at the rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of Applicants' invention and to the totality of the cited references, Applicants respectfully submit that the claimed invention is nonobvious. Reconsideration, withdrawal of the 35 U.S.C. §103 claim rejections and allowance of Claim 5, and Claims 6 and 7 depending thereon, are respectfully requested.

Claims 6 and 7 depend from amended independent claim 5, which is being submitted as being allowable for defining over Ben-David in view of Elliott as discussed above. Furthermore, it is respectfully submitted that use of each subpixel in the first pair of subpixels is triangular, and the first pair of subpixels form a diamond or use of a boundary between the first pair of subpixels extending in a row or column direction allegedly disclosed in Elliott, or any other disclosure of Elliot, does not cure the deficiencies noted above with respect to Ben-David.

Thus, since neither Ben-David nor Elliot, either alone or in combination, teach or suggest the subject matter of Claim 5, since the mere fact that the teachings of Ben-David and Elliott *could be modified* to arrive at the claimed invention does not have made the modification obvious, since the teachings of Ben-David and Elliott as a whole, are contrary to the teachings of the claimed invention as a whole, and since an improper standard has been used in arriving at the

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rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of Applicants' invention and to the totality of the cited references, *prima facie* obviousness does not exist regarding at least Claim 5 with respect to Ben-David and Elliott. Applicants respectfully submit that Claim 5 is not further rejected or objected and is therefore allowance. As Claims 6 and 7 depend from Claim 5, they are correspondingly allowable. Reconsideration, withdrawal of the 35 U.S.C. §103 claim rejections and allowance of Claims 5-7, are respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

Applicants hereby petition for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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